



BILLING CODE 3510-22-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XG454

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to US 101/Chehalis River Bridge-Scour Repair in Washington State

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice; issuance of an incidental harassment authorization.

SUMMARY: In accordance with the regulations implementing the Marine Mammal Protection Act (MMPA) as amended, notification is hereby given that we have issued an incidental harassment authorization (IHA) to Washington State Department of Transportation (WSDOT) to take small numbers of marine mammals, by harassment, incidental to US 101/Chehalis River Bridge-Scour Repair in Washington State.

DATES: This authorization is valid from July 15, 2019, through February 15, 2020.

FOR FURTHER INFORMATION CONTACT: Rob Pauline, Office of Protected Resources, NMFS, (301) 427-8401. Electronic copies of the application and supporting documents may be obtained online at: <https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-construction-activities>. In case of problems accessing these documents, please call the contact listed above.

SUPPLEMENTARY INFORMATION:

Background

The MMPA prohibits the “take” of marine mammals, with certain exceptions. Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 et seq.) direct the Secretary of Commerce (as delegated to NMFS) to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed incidental take authorization may be provided to the public for review.

Authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s) and will not have an unmitigable adverse impact on the availability of the species or stock(s) for taking for subsistence uses (where relevant). Further, NMFS must prescribe the permissible methods of taking and other means of effecting the least practicable adverse impact on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stocks for taking for certain subsistence uses (referred to in shorthand as “mitigation”); and requirements pertaining to the mitigation, monitoring and reporting of such takings are set forth.

The National Defense Authorization Act (Pub. L. 108–136) removed the small numbers and specified geographical region limitations indicated above and amended the definition of harassment as it applies to a military readiness activity

Summary of Request

On July 26, 2018, NMFS received a request from WSDOT for an IHA to take marine mammals incidental to US 101/Chehalis River Bridge-Scour Repair in the State of Washington. WSDOT’s request was for take of small numbers of harbor seal (*Phoca vitulina*); California sea

lion (*Zalophus californianus*); Steller sea lion (*Eumetopias jubatus*); gray whale (*Eschrichtius robustus*); and harbor porpoise (*Phocoena phocoena*) by Level B harassment only. This authorization is valid from July 15, 2019, through February 15, 2020. Neither WSDOT nor NMFS expects serious injury or mortality to result from this activity and, therefore, an IHA is appropriate.

Description of the Activity

Overview

WSDOT plans to conduct in-water construction work as part of the US 101/Chehalis River Bridge-Scour Repair Project in Washington State between July 15, 2019 and February 15, 2020. Vibratory pile driving will be required to remove and install timber piles, steel sheets and steel H-piles. Sound in the water from vibratory driving may result in behavioral harassment. NMFS previously issued an IHA to WSDOT to incidentally take five species of marine mammal by Level B harassment on October 18, 2017 (82 FR 50628; November 1, 2017). That IHA is valid from July 1, 2018 through June 30, 2019. However, WSDOT has made minor changes to the project plan and delayed the work by one year. Therefore, WSDOT has requested that NMFS re-issue the IHA with the dates changed to accommodate the analyzed work with minor modifications to the number of piles driven and removed as well as the number of animals authorized for take. No work was conducted or is planned to occur under the original IHA. The purpose of the US 101/Chehalis River Bridge-Scour Repair Project is to make the bridge foundation stable and protect the foundation from further scour. Bridge scour is the removal of sediment such as sand and gravel from around bridge abutments or piles. Scour, caused by swiftly moving water, can scoop out scour holes, compromising the integrity of a structure. WSDOT plans to remove debris from the scour area, fill the scour void under Pier 14 with

cement (to protect the pilings from marine borers), fill the scour hole, and protect the pier with scour resistant material.

Note that WSDOT has made revisions to the number and types of piles that would be installed and removed under the proposed 2019 IHA. The first change is the removal of 44 timber piles (some of which may be treated with creosote) from the immediate vicinity of the scour repair project. Additionally, 18 sheet piles will be temporarily installed adjacent to Pier 14, instead of the 44 sheet piles originally proposed. A detailed description of the planned WSDOT project is provided in the **Federal Register** notice for the proposed IHA (83 FR 53033; October 19, 2018). Since that time, no changes have been made to the planned WSDOT construction activities. Therefore, a detailed description is not provided here. Please refer to that **Federal Register** notice for the description of the specific activity.

Dates and Duration

Due to NMFS and the U.S. Fish and Wildlife Service (USFWS) in-water work timing restrictions to protect Endangered Species Act (ESA)-listed salmonids, planned WSDOT in-water construction is limited each year to July 15 through February 15. For this project, in-water construction is planned to take place between July 15, 2019 and September 30, 2019. The IHA is effective from July 15, 2019 to February 15, 2020. The estimated number of piles and maximum time period for pile installation and removal is 37 hours over 6 days as shown in Table 1.

Table 1. Pile Removal Mitigation and Scour Repair Pile Summary.

Method	Pile Type	Number of Piles	Minutes per pile	Total Minutes	Duration (Hours)	Piles per day	Duration (11-hour work days)
Vibratory Removal	14-inch diameter timber	44	30	1320	22	22	2

Vibratory Driving	Sheet	18	30	540	9	9	2
Vibratory Driving	H pile	6	30	180	3	6	1
Vibratory Removal	H pile	6	30	180	3	6	1
Total				2220	37		6.0

Comments and Responses

A notice of NMFS's proposal to issue an IHA to WSDOT was published in the **Federal Register** on October 19, 2018 (83 FR 53033). That notice described, in detail, WSDOT's planned activity, the marine mammal species that may be affected by the activity, and the anticipated effects on marine mammals. During the 30-day public comment period, NMFS received comments from the Marine Mammal Commission (Commission). Please see the letter, available online at <https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-construction-activities>, for full details of the Commission's recommendations. The Commission recommended that NMFS issue the IHA, subject to inclusion of the proposed mitigation, monitoring, and reporting measures.

Comment 1: The Commission expressed concern that the renewal process proposed in the **Federal Register** notice is inconsistent with the statutory requirements. The Commission recommended that NMFS refrain from implementing its proposed renewal process and instead use abbreviated **Federal Register** notices and reference existing documents to streamline the incidental harassment authorization process. The Commission further recommended that if NMFS did not pursue a more general route, NMFS should provide the Commission and the public with a legal analysis supporting its conclusion that the process is consistent with the requirements under section 101(a)(5)(D) of the MMPA.

Response 1: The notice of the proposed IHA expressly notifies the public that under certain, limited conditions an applicant could seek a renewal IHA for an additional year. The notice describes the conditions under which such a renewal request could be considered and expressly seeks public comment in the event such a renewal is sought. Additional reference to this solicitation of public comment has recently been added at the beginning of **Federal Register** notices that consider renewals. NMFS appreciates the streamlining achieved by the use of abbreviated **Federal Register** notices and intends to continue using them for proposed IHAs that include minor changes from previously issued IHAs, but which do not satisfy the renewal requirements. However, we believe our proposed method for issuing renewals meets statutory requirements and maximizes efficiency. Importantly, such renewals would be limited to where the activities are identical or nearly identical to those analyzed in the proposed IHA, monitoring does not indicate impacts that were not previously analyzed and authorized, and the mitigation and monitoring requirements remain the same, all of which allow the public to comment on the appropriateness and effects of a renewal at the same time the public provides comments on the initial IHA. NMFS has, however, modified the language for future proposed IHAs to clarify that all IHAs, including renewal IHAs, are valid for no more than one year and that the agency would consider only one renewal for a project at this time. In addition, notice of issuance or denial of a renewal IHA would be published in the **Federal Register**, as are all IHAs. Last, NMFS will publish on our website a description of the renewal process before any renewal is issued utilizing the new process.

Description of Marine Mammals in the Area of Specified Activities

A detailed description of the species likely to be affected by WSDOT's project, including brief introductions to the species and relevant stocks as well as available information regarding

population trends and threats, and information regarding local occurrence, were provided in the **Federal Register** notice for the proposed IHA (83 FR 53033; October 19, 2018); since that time, we are not aware of any changes in the status of these species and stocks; therefore, detailed descriptions are not provided here. Please refer to that **Federal Register** notice for these descriptions. Please also refer to NMFS' website (<https://www.fisheries.noaa.gov/find-species>) for generalized species accounts.

Table 2 lists all species with expected potential for occurrence in the project location and summarizes information related to the population or stock, including regulatory status under the MMPA and ESA and potential biological removal (PBR), where known. For taxonomy, we follow Committee on Taxonomy (2017). PBR is defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population (as described in NMFS's SARs). While no mortality is anticipated or authorized here, PBR and annual serious injury and mortality from anthropogenic sources are included here as gross indicators of the status of the species and other threats.

Marine mammal abundance estimates presented in this document represent the total number of individuals that make up a given stock or the total number estimated within a particular study or survey area. NMFS's stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. For some species, this geographic area may extend beyond U.S. waters. All managed stocks in this region are assessed in NMFS's U.S. 2017 SARs (<https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments>) and draft U.S. 2018 SARs (<https://www.fisheries.noaa.gov/national/marine->

mammal-protection/draft-marine-mammal-stock-assessment-reports). All values presented in Table 2 are the most recent available at the time of publication

Table 2. Marine mammals with potential presence within the project area.

Common name	Scientific name	Stock	ESA/MMPA status; Strategic (Y/N) ¹	Stock abundance (CV, N _{min} , most recent abundance survey) ²	PBR	Annual M/SI ³
Order Cetartiodactyla – Cetacea – Superfamily Mysticeti (baleen whales)						
Family Eschrichtiidae						
Gray whale	<i>Eschrichtius robustus</i>	Eastern North Pacific	N	20,990 (0.05, 20,125, 2011)	624	132
Family Phocoenidae (porpoises)						
Harbor porpoise	<i>Phocoena phocoena</i>	Northern Oregon/Washington Coast	N	21,487 (0.44, 15,123, 2011)	151	≥3.0
Order Carnivora – Superfamily Pinnipedia						
Family Otariidae (eared seals and sea lions)						
California sea lion	<i>Zalophus californianus</i>	U.S.	N	296,750 (n/a, 153,337, 2011)	9,200	389
Steller sea lion	<i>Eumetopias jubatus</i>	Eastern U.S.	N	41,638 (n/a, 41,638, 2015) ⁴	2,498	108
Family Phocidae (earless seals)						
Harbor seal	<i>Phoca vitulina</i>	Oregon/Washington Coast	N	Unk ⁵	undet	10.6

¹Endangered Species Act (ESA) status: Endangered (E), Threatened (T)/MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds PBR or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.

²NMFS marine mammal stock assessment reports online at: <https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments>. CV is coefficient of variation; N_{min} is the minimum estimate of stock abundance. In some cases a CV is not applicable. For certain stocks of pinnipeds, abundance estimates are based upon observations of animals (often pups) ashore multiplied by some correction factor derived from knowledge of the species' (or similar species') life history to arrive at a best abundance estimate; therefore, there is no associated CV.

³These values, found in NMFS's SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (e.g., commercial fisheries, ship strike). Annual M/SI often cannot be determined precisely and is in some cases presented as a minimum value or range. A CV associated with estimated mortality due to commercial fisheries is presented in some cases.

⁴Best estimate of pup and non-pup counts, which have not been corrected to account for animals at sea during abundance surveys.

⁵Harbor seal estimate is based on data that are 8 years old, but this is the best available information for use here.

All species that could potentially occur in the survey areas are included in Table 2.

Potential Effects of Specified Activities on Marine Mammals and their Habitat

The effects of underwater noise from vibratory pile driving and removal activities for the planned River Bridge-Scour repair project have the potential to result in behavioral harassment of marine mammals in the vicinity of the action area. The **Federal Register** notice for the

proposed IHA (83 FR 53033; October 19, 2018) included a discussion of the effects of anthropogenic noise on marine mammals and their habitat, therefore that information is not repeated here; please refer to the **Federal Register** notice (83 FR 53033; October 19, 2018) for that information.

Estimated Take

This section provides an estimate of the number of incidental takes authorized through this IHA, which will inform both NMFS' consideration of "small numbers" and the negligible impact determination.

Harassment is the only type of take expected to result from these activities. Except with respect to certain activities not pertinent here, section 3(18) of the MMPA defines "harassment" as any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B harassment).

Authorized takes would be by Level B harassment only, in the form of disruption of behavioral patterns for individual marine mammals resulting from exposure to vibratory driving. Based on the nature of the activity and the anticipated effectiveness of the mitigation measures (*i.e.*, shutdown, establishment and monitoring of harassment zones) discussed in detail below in the Mitigation section), Level A harassment is neither anticipated nor authorized.

As described previously, no mortality is anticipated or authorized for this activity. Below we describe how the take is estimated.

Generally speaking, we estimate take by considering: (1) acoustic thresholds above which NMFS believes the best available science indicates marine mammals will be behaviorally harassed or incur some degree of permanent hearing impairment; (2) the area or volume of water that will be ensonified above these levels in a day; (3) the density or occurrence of marine mammals within these ensonified areas; and, (4) the number of days of activities. We note that while these basic factors can contribute to a basic calculation to provide an initial prediction of takes, additional information that can qualitatively inform take estimates is also sometimes available (e.g., previous monitoring results or average group size). Below, we describe the factors considered here in more detail and present the authorized take estimate.

Acoustic Thresholds

Using the best available science, NMFS has developed acoustic thresholds that identify the received level of underwater sound above which exposed marine mammals would be reasonably expected to be behaviorally harassed (equated to Level B harassment) or to incur permanent threshold shift (PTS) (equated to Level A harassment).

Level B Harassment for non-explosive sources – Though significantly driven by received level, the onset of behavioral disturbance from anthropogenic noise exposure is also informed to varying degrees by other factors related to the source (*e.g.*, frequency, predictability, duty cycle), the environment (*e.g.*, bathymetry), and the receiving animals (hearing, motivation, experience, demography, behavioral context) and can be difficult to predict (Southall *et al.*, 2007, Ellison *et al.*, 2012). Based on what the available science indicates and the practical need to use a threshold based on a factor that is both predictable and measurable for most activities, NMFS uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS predicts that marine mammals are likely to be behaviorally harassed in a

manner we consider Level B harassment when exposed to underwater anthropogenic noise above received levels of 120 decibel (dB) re 1 micro pascal (μPa) root means square (rms) for continuous (*e.g.*, vibratory pile-driving, drilling) sources such as those used here.

WSDOT's planned activity includes the use of continuous (vibratory driving and removal and, therefore, the 120 dB re 1 μPa (rms) is applicable.

Level A harassment for non-explosive sources - NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0) (NMFS, 2018) identifies dual criteria to assess auditory injury (Level A harassment) to five different marine mammal groups (based on hearing sensitivity) as a result of exposure to noise from two different types of sources (impulsive or non-impulsive). WSDOT's planned activity includes the use non-impulsive (vibratory driving) sources.

These thresholds are provided in Table 3 below. The references, analysis, and methodology used in the development of the thresholds are described in NMFS 2018 Technical Guidance, which may be accessed at: <https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance>.

Table 3. Thresholds identifying the onset of Permanent Threshold Shift.

	PTS Onset Acoustic Thresholds* (Received Level)	
Hearing Group	Impulsive	Non-impulsive
Low-Frequency (LF) Cetaceans	<i>Cell 1</i> $L_{pk,flat}$: 219 dB $L_{E,LF,24h}$: 183 dB	<i>Cell 2</i> $L_{E,LF,24h}$: 199 dB
Mid-Frequency (MF) Cetaceans	<i>Cell 3</i> $L_{pk,flat}$: 230 dB $L_{E,MF,24h}$: 185 dB	<i>Cell 4</i> $L_{E,MF,24h}$: 198 dB
High-Frequency (HF) Cetaceans	<i>Cell 5</i> $L_{pk,flat}$: 202 dB $L_{E,HF,24h}$: 155 dB	<i>Cell 6</i> $L_{E,HF,24h}$: 173 dB
Phocid Pinnipeds (PW) (Underwater)	<i>Cell 7</i> $L_{pk,flat}$: 218 dB $L_{E,PW,24h}$: 185 dB	<i>Cell 8</i> $L_{E,PW,24h}$: 201 dB
Otariid Pinnipeds (OW) (Underwater)	<i>Cell 9</i> $L_{pk,flat}$: 232 dB $L_{E,OW,24h}$: 203 dB	<i>Cell 10</i> $L_{E,OW,24h}$: 219 dB
<p>* Dual metric acoustic thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating PTS onset. If a non-impulsive sound has the potential of exceeding the peak sound pressure level thresholds associated with impulsive sounds, these thresholds should also be considered.</p> <p><u>Note:</u> Peak sound pressure (L_{pk}) has a reference value of 1 μPa, and cumulative sound exposure level (L_E) has a reference value of 1 μPa²s. In this Table, thresholds are abbreviated to reflect American National Standards Institute standards (ANSI 2013). However, peak sound pressure is defined by ANSI as incorporating frequency weighting, which is not the intent for this Technical Guidance. Hence, the subscript “flat” is being included to indicate peak sound pressure should be flat weighted or unweighted within the generalized hearing range. The subscript associated with cumulative sound exposure level thresholds indicates the designated marine mammal auditory weighting function (LF, MF, and HF cetaceans, and PW and OW pinnipeds) and that the recommended accumulation period is 24 hours. The cumulative sound exposure level thresholds could be exceeded in a multitude of ways (i.e., varying exposure levels and durations, duty cycle). When possible, it is valuable for action proponents to indicate the conditions under which these acoustic thresholds will be exceeded.</p>		

Ensonified Area

Here, we describe operational and environmental parameters of the activity that will feed into identifying the area ensonified above the acoustic thresholds, which include source levels and transmission loss coefficient.

Reference sound source levels used by WSDOT vibratory piling driving and removal activities were derived from several sources. WSDOT utilized in-water measurements generated

by the Greenbusch Group (2018) from the WDOT Seattle Pier 62 project (83 FR 39709) to establish proxy sound source levels for vibratory removal of 14-inch timber piles. The results determined unweighted rms ranging from 140 dB to 169 dB. WSDOT used the 75th percentile of these values (161 dB rms measured at 10 meters) as a proxy for vibratory removal of 14-inch timber piles at the Chehalis River Bridge. However, NMFS reviewed the report by the Greenbusch Group (2018) and determined that the findings were derived by pooling together all steel pile and timber pile at various distance measurements data together. The data was not normalized to the standard 10 m distance. NMFS analyzed source measurements at different distances for all 63 individual timber piles that were removed and normalized the values to 10 m. The results showed that the median is 152 dB SPLrms. This value was used as the source level for vibratory removal of 14-inch timber piles.

The planned project includes vibratory driving of 18 sheet piles as well as vibratory driving and removal of six steel H piles. Based on in-water measurements at the Elliot Bay Seawall Project, vibratory pile driving of steel sheet piles generated a source level of 165 dB rms measured at 10 m (Greenbush Group 2015). According to CalTrans (2015), 150 dB rms at 10 m is a typical source level for vibratory driving and removal of steel H piles.

Level B Harassment Zones

The practical spreading model was used by WSDOT to establish the Level B harassment zones for all vibratory pile installation and removal activities. Practical spreading is described in full detail below.

Pile driving generates underwater noise that can potentially result in disturbance to marine mammals in the project area. Transmission loss (TL) is the decrease in acoustic intensity as an acoustic pressure wave propagates out from a source. TL parameters vary with frequency,

temperature, sea conditions, current, source and receiver depth, water depth, water chemistry, and bottom composition and topography. The general formula for underwater TL is:

$$TL = B * \log_{10} (R1/R2),$$

Where:

R1 = the distance of the modeled SPL from the driven pile, and

R2 = the distance from the driven pile of the initial measurement.

This formula neglects loss due to scattering and absorption, which is assumed to be zero here. The degree to which underwater sound propagates away from a sound source is dependent on a variety of factors, most notably the water bathymetry and presence or absence of reflective or absorptive conditions including in-water structures and sediments. Spherical spreading occurs in a perfectly unobstructed (free-field) environment not limited by depth or water surface, resulting in a 6 dB reduction in sound level for each doubling of distance from the source ($20 * \log[\text{range}]$). Cylindrical spreading occurs in an environment in which sound propagation is bounded by the water surface and sea bottom, resulting in a reduction of 3 dB in sound level for each doubling of distance from the source ($10 * \log[\text{range}]$). A practical spreading value of 15 is often used under conditions where water increases with depth as the receiver moves away from the shoreline, resulting in an expected propagation environment that would lie between spherical and cylindrical spreading loss conditions.

Utilizing the practical spreading loss model, WSDOT determined the distance and area where the noise will fall below the behavioral effects threshold of 120 dB rms. The distances and areas are shown in Table 4. Note that the ensonified area is based on a GIS analysis of the area accounting for structures and landmasses which would block underwater sound transmission.

Table 4. Level B Harassment Ensonified Area.

Pile type	Level B Harassment Zone Isopleth (meters)	Area (km²)
14-inch timber vibratory removal	1,359	0.93
Steel sheet vibratory driving	10,000	2.04
Steel H-pile vibratory driving and removal	1,000	0.67

Level A Harassment Zones

When the NMFS Technical Guidance (2016) was published, in recognition of the fact that ensonified area/volume could be more technically challenging to predict because of the duration component in the new thresholds, we developed a User Spreadsheet that includes tools to help predict a simple isopleth that can be used in conjunction with marine mammal density or occurrence to help predict takes. We note that because of some of the assumptions included in the methods used for these tools, we anticipate that isopleths produced are typically going to be overestimates of some degree. However, these tools offer the best way to predict appropriate isopleths when more sophisticated 3D modeling methods are not available, and NMFS continues to develop ways to quantitatively refine these tools, and will qualitatively address the output where appropriate. For stationary sources such as vibratory driving, NMFS User Spreadsheet predicts the closest distance at which, if a marine mammal remained at that distance the whole duration of the activity, it would not incur PTS. User Spreadsheet inputs are shown in Table 5 and outputs are shown in Table 6. Note that since no Level A harassment take is authorized, the areas of the Level A harassment zones were not calculated.

Table 5. Parameters of Pile Driving Activity.

USER SPREADSHEET INPUT			
	14-inch timber	Sheet	H-Pile
Spreadsheet Tab Used	A.1) Vibratory driving	A.1) Vibratory driving	A.1) Vibratory driving
Source Level (rms SPL)	152	165	150
Weighting Factor Adjustment (kHz)	2.5	2.5	2.5
Number of piles in 24-h period	22	9	6
Duration to drive a single pile (minutes)	30	30	30
Propagation (xLogR)	15	15	15
Distance of source level measurement (meters)*	10	10	10

Table 6. Level A Harassment Zone Isopleths.

USER SPREADSHEET OUTPUT					
	PTS Isopleth (meters)				
Source Type	Low-Frequency Cetaceans	Mid-Frequency Cetaceans	High-Frequency Cetaceans	Phocid Pinnipeds	Otariid Pinnipeds
14-inch timber	8.5	0.8	12.5	5.2	0.4
Sheet pile	34.4	3	50.9	20.9	1.5
H-pile	2.6	0.2	3.9	1.6	0.1

Marine Mammal Occurrence

In this section we provide the information about the presence, density, or group dynamics of marine mammals that will inform the take calculations.

There is little abundance or density data available for marine mammal species that are likely to occur within Grays Harbor and which could potentially be found in the Chehalis River near the project site. In most cases, WSDOT relied on density data from the U.S. Navy Marine Species Density Database (NMSDD) (U.S. Navy 2015). NMFS concurs that this, and the exceptions described below, represent the best available data for use here.

Harbor seal

While the NMSDD (U.S. Navy 2015) estimates the density of harbor seals in the waters offshore of Grays Harbor as 0.279 animals per square kilometer, WSDOT relied on a study which identified 44 harbor seal haul-outs in Grays Harbor and provided very rough estimates of the number of seals at each site. Twenty-seven haul-outs had less than 100 animals; 16 haul-outs had 100-500 animals; and 2 haul outs were reported to support over 500 animals (Jeffries *et al.* 2000). These data likely represent the best estimate of harbor seal numbers in Grays Harbor. Using median numbers of each haul-out estimate range resulted in an estimated 7,150 harbor seals in Grays Harbor. The area of the estuary during mean higher high water (243 km²) was used to derive a density estimate of 29.4 harbor seals per square kilometer.

California Sea Lion

Only 10 California sea lion strandings have been documented between 2006 and 2015 (NMFS 2016c), and no haul-outs have been identified. Therefore, it is expected that the density of California sea lions in Grays Harbor is low. The NMSDD (U.S. Navy 2015) estimates the density of California sea lions in the waters offshore of Grays Harbor as ranging from 0.020 to 0.033 animals per square kilometer in summer and fall. The higher estimate is used as a surrogate for Grays Harbor.

Steller Sea Lion

According to the NMFS National Stranding Database, there were four confirmed Steller sea lion strandings in Grays Harbor between 2006 and 2015 (NMFS 2016c) and no haul-outs have been identified in Grays Harbor. The NMSDD (U.S. Navy 2015) estimates the density of Steller sea lions in the waters offshore of Grays Harbor as 0.0145 animals per square kilometer. This estimate is used as a surrogate for Grays Harbor.

Gray Whale

Between 1998 and 2010, gray whale numbers peaked in spring and fall in a study area that included waters inside Grays Harbor and coastal waters along the south Washington coast (Calambokidis, *et al.* 2012). However, no density estimates are available for Grays Harbor. The NMSDD (U.S. Navy 2015) estimates the density of gray whales in nearshore waters near Grays Harbor as 0.00045 animal per square kilometer in summer and fall. This density is used for Grays Harbor.

Harbor Porpoise

The NMSDD (U.S. Navy 2015) estimates the density of harbor porpoises in the waters offshore of Grays Harbor as a range between 0.69 and 1.67 animals per square kilometer. According to Evenson *et al.* (2016), the maximum harbor porpoise density in the Strait of Juan de Fuca (approximately 105 miles north of Grays Harbor) in 2014 was 0.768 animals per square kilometer. The higher density estimate for waters offshore of Grays Harbor (1.67) is used to estimate take.

Take Calculation and Estimation

Here we describe how the information provided above is brought together to produce a quantitative take estimate.

No Level A harassment take is likely because of the small injury zones and relatively low average animal density in the area. Since the largest Level A harassment distance is only 50.9 m from the source for high-frequency cetaceans (harbor porpoise), NMFS considers that WSDOT can effectively monitor such small zones to implement shutdown measures and avoid Level A harassment takes. Therefore, no Level A harassment take of marine mammal is authorized.

NMFS used an estimated harbor seal density of 29.4 animals/km² in the US 101/Chehalis River Bridge-Scour Repair Project area to estimate the following number of Level B harassment exposures that may occur:

- 14-inch timber pile removal: 29.4 animals/km² * 0.93 km² * 2 days = 54.68
- Sheet pile installation: 29.4 animals/km² * 2.04 km² * 2 days = 119.95
- H-pile installation and removal: 29.4 animals/km² * 0.67 km² * 2 days = 39.39

Based on the sum of the equations above, NMFS authorizes 214 takes of harbor seals by Level B harassment.

NMFS inserted the California sea lion density of 0.033 animals/km² into the same equation used above for harbor seals to estimate Level B harassment exposures. Based on the sum of the equations, an estimated 0.24 California sea lions would be taken by Level B harassment. Due to this low value, NMFS conservatively authorizes the take of two California sea lions each day of in-water activities, resulting in 12 takes by Level B harassment.

NMFS estimated take of Steller sea lions by inserting a density of 0.0145 animals/km² into the same equation used above for harbor seals resulting in 0.10 takes of sea lions. Given the low value, NMFS conservatively authorizes the take of two Steller sea lions during each day of in-water activities, resulting in 12 takes by Level B harassment.

NMFS used the same equation that was used for harbor seals to estimate take for gray whales by inserting a density value of 0.00045 animals/km². Since this resulted in a value less than one, NMFS authorizes Level B harassment take of two gray whales per day based on average group size.

For the proposed IHA, a density value of 1.67 animal/km² for harbor porpoises was plugged into the harbor seal equation to arrive at an estimated 2 harbor porpoise takes per day for a total of 12.

Table 7 shows total number of authorized Level B harassment takes and take as a percentage of population for each of the species.

Table 7. Take Estimates as a Percentage of Stock Abundance.

Species	Authorized Take by Level B Harassment	% population
Harbor seal	214	1.9
California sea lion	12	<0.01
Steller sea lion	12	<0.01
Gray whale	2	<0.01
Harbor porpoise	12	<0.01

Mitigation Measures

In order to issue an IHA under Section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to such activity, and other means of effecting the least practicable impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stock for taking for certain subsistence uses (latter not applicable for this action). NMFS regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting such activity or other means of effecting the least practicable adverse impact upon the affected species or stocks and their habitat (50 CFR 216.104(a)(11)).

In evaluating how mitigation may or may not be appropriate to ensure the least practicable adverse impact on species or stocks and their habitat, as well as subsistence uses where applicable, we carefully consider two primary factors:

(1) the manner in which, and the degree to which, the successful implementation of the measure(s) is expected to reduce impacts to marine mammals, marine mammal species or stocks, and their habitat. This considers the nature of the potential adverse impact being mitigated (likelihood, scope, range). It further considers the likelihood that the measure will be effective if implemented (probability of accomplishing the mitigating result if implemented as planned) the likelihood of effective implementation (probability implemented as planned), and;

(2) the practicability of the measures for applicant implementation, which may consider such things as cost, impact on operations, and, in the case of a military readiness activity, personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

Mitigation for Marine Mammals and their Habitat

Temporal and Seasonal Restrictions—Timing restrictions would be used to avoid in-water work when ESA-listed salmonids are most likely to be present. The combined work window for in-water work for the U.S. 101/Chehalis River Bridge –Scour Project is July 15 through February 15. Furthermore, work may only occur during daylight hours, when visual monitoring of marine mammals can be effectively conducted.

Establishment of Shutdown Zone—For all pile driving activities, WSDOT will establish a shutdown zone. The purpose of a shutdown zone is generally to define an area within which shutdown of activity would occur upon sighting of a marine mammal (or in anticipation of an animal entering the defined area). In this case, shutdown zones are intended to contain areas in

which sound pressure levels (SPLs) equal or exceed acoustic injury criteria for authorized species. If a marine mammal is observed at or within the shutdown zone, work must shut down (stop work) until the individual has been observed outside of the zone, or has not been observed for at least 15 minutes for all marine mammals. A determination that the shutdown zone is clear must be made during a period of good visibility (i.e., the entire shutdown zone and surrounding waters must be visible to the naked eye). If a marine mammal approaches or enters the shutdown zone during activities or pre-activity monitoring, all pile driving and removal activities at that location must be halted or delayed, respectively. If pile driving or removal is halted or delayed due to the presence of a marine mammal, the activity may not resume or commence until either the animal has voluntarily left and been visually confirmed beyond the shutdown zone or 15 minutes have passed without re-detection of the animal. Pile driving and removal activities include the time to install or remove a single pile or series of piles, as long as the time elapsed between uses of the pile driving equipment is no more than thirty minutes. Shutdown zone sizes are shown in Table 8. Note that NMFS has increased the shutdown zone described in the **Federal Register** notice for proposed IHA for high-frequency cetaceans from 50 m to 55 m as well as the shutdown zone for phocid pinnipeds from 20 m to 25 m during sheet pile installation. In this notice of issuance, NMFS has elected to round up to these higher values instead of rounding down as was done in the proposed notice.

Table 8. Shutdown Zones for Various Pile Driving Activities and Marine Mammal Hearing Groups (Meters).

Source Type	Low-Frequency Cetaceans	High-Frequency Cetaceans	Phocid Pinnipeds	Otariid Pinnipeds
14-inch timber removal	10	15	10	10
Sheet pile installation	35	55	25	10
H-pile installation and removal	10	10	10	10

For in-water heavy machinery activities other than pile driving, if a marine mammal comes within 10 m, operations must cease and vessels must reduce speed to the minimum level required to maintain steerage and safe working conditions. WSDOT must also implement shutdown measures if the cumulative total number of individuals observed within the Level B harassment monitoring zones for any particular species reaches the number authorized under the IHA and if such marine mammals are sighted within the vicinity of the project area and are approaching the Level B Harassment/Monitoring Zone during in-water construction activities.

Establishment of Level B Harassment/Monitoring Zones—WSDOT must identify and establish Level B harassment zones which are areas where SPLs equal or exceed 120 dB rms. Observation of monitoring zones enables observers to be aware of and communicate the presence of marine mammals in the project area and outside the shutdown zone and thus prepare for potential shutdowns of activity. Monitoring zones are also used to document instances of Level B harassment. Monitoring zone isopleths are shown in Table 4.

Pre-Activity Monitoring—Prior to the start of daily in-water construction activity, or whenever a break in pile driving of 30 minutes or longer occurs, the observer shall observe the shutdown and monitoring zones for a period of 30 minutes. The shutdown zone shall be cleared when a marine mammal has not been observed within the zone for that 30-minute period. When a marine mammal permitted for Level B harassment take is present in the Level B harassment zone, piling activities may begin and Level B harassment take shall be recorded. As stated above, if the entire Level B harassment zone is not visible at the start of construction, piling driving activities can begin. If work ceases for more than 30 minutes, the pre-activity monitoring of both the Level B harassment and shutdown zone shall commence.

Non-Authorized Take Prohibited—If a species enters or approaches the Level B harassment zone and that species is not authorized for take or a species for which authorization has been granted but the authorized takes have been met, pile driving and removal activities must shut down immediately. Activities must not resume until the animal has been confirmed to have left the area or an observation time period of 15 minutes has elapsed.

Based on our evaluation of the applicant's mitigation measures, NMFS has determined that the required mitigation measures provide the means effecting the least practicable impact on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance

Monitoring and Reporting

In order to issue an IHA for an activity, Section 101(a)(5)(D) of the MMPA states that NMFS must set forth, requirements pertaining to the monitoring and reporting of such taking. The MMPA implementing regulations at 50 CFR 216.104 (a)(13) indicate that requests for authorizations must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present in the action area. Effective reporting is critical both to compliance as well as ensuring that the most value is obtained from the required monitoring.

Monitoring and reporting requirements prescribed by NMFS should contribute to improved understanding of one or more of the following:

- Occurrence of marine mammal species or stocks in the area in which take is anticipated (*e.g.*, presence, abundance, distribution, density);

- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better understanding of: (1) action or environment (*e.g.*, source characterization, propagation, ambient noise); (2) affected species (*e.g.*, life history, dive patterns); (3) co-occurrence of marine mammal species with the action; or (4) biological or behavioral context of exposure (*e.g.*, age, calving or feeding areas);
- Individual marine mammal responses (behavioral or physiological) to acoustic stressors (acute, chronic, or cumulative), other stressors, or cumulative impacts from multiple stressors;
- How anticipated responses to stressors impact either: (1) long-term fitness and survival of individual marine mammals; or (2) populations, species, or stocks;
- Effects on marine mammal habitat (*e.g.*, marine mammal prey species, acoustic habitat, or other important physical components of marine mammal habitat); and
- Mitigation and monitoring effectiveness.

Visual Monitoring

WSDOT shall employ NMFS-approved protected species observers (PSOs) to conduct marine mammal monitoring for its US 101/Chehalis River Bridge-Scour Repair Project. The purposes of marine mammal monitoring are to implement mitigation measures and learn more about impacts to marine mammals from WSDOT's construction activities. The PSOs will observe and collect data on marine mammals in and around the project area for 30 minutes before, during, and for 30 minutes after all pile removal and pile installation work. NMFS-approved PSOs shall meet the following requirements:

1. Independent observers (*i.e.*, not construction personnel) are required;

2. At least one observer must have prior experience working as an observer;
3. Other observers may substitute education (undergraduate degree in biological science or related field) or training for experience;
4. Where a team of three or more observers are required, one observer should be designated as lead observer or monitoring coordinator. The lead observer must have prior experience working as an observer; and
5. NMFS will require submission and approval of observer CVs;

WSDOT must ensure that observers have the following additional qualifications:

1. Ability to conduct field observations and collect data according to assigned protocols;
2. Experience or training in the field identification of marine mammals, including the identification of behaviors;
3. Sufficient training, orientation, or experience with the construction operation to provide for personal safety during observations;
4. Writing skills sufficient to prepare a report of observations including but not limited to the number and species of marine mammals observed; dates and times when in-water construction activities were conducted; dates, times, and reason for implementation of mitigation (or why mitigation was not implemented when required); and marine mammal behavior; and
5. Ability to communicate orally, by radio or in person, with project personnel to provide real-time information on marine mammals observed in the area as necessary.

Monitoring of marine mammals around the construction site shall be conducted using high-quality binoculars (*e.g.*, Zeiss, 10 x 42 power). Due to the different sizes of monitoring

zones from different pile types, separate zones and monitoring protocols corresponding to each specific pile type will be established.

For vibratory pile driving of sheet piles, a total of four land-based PSOs will monitor the shutdown and Level B harassment zones. For vibratory pile driving and pile removal of H piles and timber piles, a total of three land-based PSOs will monitor the shutdown and Level B harassment zones.

Reporting Measures

WSDOT is required to submit a draft monitoring report within 90 days after completion of the construction work or the expiration of the IHA, whichever comes earlier. This report will detail the monitoring protocol, summarize the data recorded during monitoring, and estimate the number of marine mammals that may have been harassed. NMFS will have an opportunity to provide comments on the report, and if NMFS has comments, WSDOT will address the comments and submit a final report to NMFS within 30 days. Reports shall contain, at minimum, the following:

- Date and time that monitored activity begins and ends for each day conducted (monitoring period);
- Construction activities occurring during each daily observation period, including how many and what type of piles driven;
- Deviation from initial proposal in pile numbers, pile types, average driving times, etc.
- Weather parameters in each monitoring period (e.g., wind speed, percent cloud cover, visibility);
- Water conditions in each monitoring period (e.g., sea state, tide state);

- For each marine mammal sighting:
 - Species, numbers, and, if possible, sex and age class of marine mammals;
 - Description of any observable marine mammal behavior patterns, including bearing and direction of travel and distance from pile driving activity;
 - Location and distance from pile driving activities to marine mammals and distance from the marine mammals to the observation point; and
 - Estimated amount of time that the animals remained in the Level B harassment zone;
- Description of implementation of mitigation measures within each monitoring period (e.g., shutdown or delay);
- Other human activity in the area within each monitoring period; and
- A summary of the following:
 - Total number of individuals of each species detected within the Level B harassment zone;
 - Total number of individuals of each species detected within the shutdown zone and the average amount of time that they remained in that zone; and
 - Daily average number of individuals of each species (differentiated by month as appropriate) detected within the Level B harassment zone.

Negligible Impact Analysis and Determination

NMFS has defined negligible impact as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on annual rates of

recruitment or survival (*i.e.*, population-level effects). An estimate of the number of takes alone is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be “taken” through harassment, NMFS considers other factors, such as the likely nature of any responses (*e.g.*, intensity, duration), the context of any responses (*e.g.*, critical reproductive time or location, migration), as well as effects on habitat, and the likely effectiveness of the mitigation. We also assess the number, intensity, and context of estimated takes by evaluating this information relative to population status. Consistent with the 1989 preamble for NMFS’s implementing regulations (54 FR 40338; September 29, 1989), the impacts from other past and ongoing anthropogenic activities are incorporated into this analysis via their impacts on the environmental baseline (*e.g.*, as reflected in the regulatory status of the species, population size and growth rate where known, ongoing sources of human-caused mortality, or ambient noise levels).

NMFS has identified key qualitative and quantitative factors which may be employed to assess the level of analysis necessary to conclude whether potential impacts associated with a specified activity should be considered negligible. These include (but are not limited to) the type and magnitude of taking, the amount and importance of the available habitat for the species or stock that is affected, the duration of the anticipated effect to the species or stock, and the status of the species or stock. When an evaluation of key factors shows that the anticipated impacts of the specified activity would clearly result in no greater than a negligible impact on all affected species or stocks, additional evaluation is not required. In this case, the following factors are in place for all affected species or stocks:

- No takes by Level A harassment are anticipated or authorized;

- Takes by Level B harassment constitute less than 5 percent of the best available abundance estimates for all stocks;
- Take would not occur in places and/or times where take would be more likely to accrue to impacts on reproduction or survival, such as within ESA-designated or proposed critical habitat, biologically important areas (BIA), or other habitats critical to recruitment or survival (*e.g.*, rookery);
- Take would occur over a short timeframe (less than 30 days of active pile driving required during the IHA effective period);
- Take would occur over < 25 percent of species/stock range; and
- Stock is not known to be declining or suffering from known contributors to decline (*e.g.*, unusual mortality event (UME), oil spill effects).

Based on these factors, and taking into consideration the implementation of the prescribed monitoring and mitigation measures, NMFS finds that the total take from the planned activity will have a negligible impact on all affected marine mammal species or stocks.

Small Numbers

As noted above, only small numbers of incidental take may be authorized under Sections 101(a)(5)(A) and (D) of the MMPA for specified activities other than military readiness activities. The MMPA does not define small numbers and so, in practice, where estimated numbers are available, NMFS compares the number of individuals taken to the most appropriate estimation of abundance of the relevant species or stock in our determination of whether an authorization is limited to small numbers of marine mammals. Additionally, other qualitative factors may be considered in the analysis, such as the temporal or spatial scale of the activities.

NMFS has estimated that take for all species authorized is less than two percent of their respective stock abundance (Table 7). Based on the analysis contained herein of the planned activity (including the required mitigation and monitoring measures) and the anticipated take of marine mammals, NMFS finds that small numbers of marine mammals will be taken relative to the population size of the affected species or stocks.

Unmitigable Adverse Impact Analysis and Determination

There are no relevant subsistence uses of the affected marine mammal stocks or species implicated by this action. Therefore, NMFS has determined that the total taking of affected species or stocks would not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

National Environmental Policy Act

To comply with the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq.*) and NOAA Administrative Order (NAO) 216-6A, NMFS must review our proposed action (*i.e.*, the issuance of an incidental harassment authorization) with respect to potential impacts on the human environment.

This action is consistent with categories of activities identified in Categorical Exclusion B4 (incidental harassment authorizations with no anticipated serious injury or mortality) of the Companion Manual for NOAA Administrative Order 216-6A, which do not individually or cumulatively have the potential for significant impacts on the quality of the human environment and for which we have not identified any extraordinary circumstances that would preclude this categorical exclusion. Accordingly, NMFS has determined that the issuance of the IHA qualifies to be categorically excluded from further NEPA review.

Endangered Species Act (ESA)

No incidental take of ESA-listed species is authorized or expected to result from this activity. Therefore, NMFS has determined that formal consultation under section 7 of the ESA is not required for this action.

Authorization

NMFS has issued an IHA to WSDOT for the incidental take of marine mammals due to in-water construction work associated with the US 101/Chehalis River Bridge-Scour Repair Project for a period of one year, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated.

Dated: December 11, 2018.

Donna S. Wieting,

Director, Office of Protected Resources,

National Marine Fisheries Service.

[FR Doc. 2018-27199 Filed: 12/14/2018 8:45 am; Publication Date: 12/17/2018]